

REMARKS/ARGUMENTS

Favorable reconsideration of the present application is respectfully requested.

A minor error in the preamble of dependent Claims 21-26 has been corrected.

As a threshold matter, Applicants respectfully traverse the withdrawal of Claims 19-26 as being directed to an invention that is independent or distinct from the invention as originally claimed. Claims 19-26 are directed to an invention in the same statutory class as the original claims, i.e., a fuel cell stack. Moreover, Claim 19 recites the same inventive feature as Claim 10, i.e., plural fuel cells, wherein the thermoelectric modules are in contact with both a respective one of the fuel cells and an internal duct between the cells and comprising a cold sink.

The Office Action considers that Claims 19-26 are directed to a distinct or independent invention because the original claims “do not require a plurality of thermoelectric modules ... in two separate layers in contact with two different fuel cells.” It is respectfully submitted that this is not evidence that claim 19 is a distinct or independent invention; merely that it has a different scope than does Claim 10.

In any case, the present application is in the national stage of a PCT application, and so any restriction requirement is governed by the unity of invention rules under 37 C.F.R. § 1.475 (see MPEP § 1850). In this case, even claims directed to different inventions will be examined in the same application if they “form a single general inventive concept.” Here, original Claim 10 is directed to the inventive concept of plural fuel cells, wherein the thermoelectric modules are in contact with both a respective one of the fuel cells and an internal duct between the cells and comprising a cold sink. Claim 19 is directed to the same general inventive concept: an internal duct in contact with respective thermoelectric modules, although in this case a plate is also recited.

Claim 10 has been amended to change the phrase “at least two elementary cells disposed in facing relationship” to “at least two adjacent elementary cells.” The rejection under 35 U.S.C. § 112 is therefore believed to be moot.

Claims 10-12 and 15-18 were rejected under 35 U.S.C. § 103 as being obvious over Reiser in view of JP ‘272, wherein Reiser was cited to teach a fuel stack having internal cooling ducts 60, and JP ‘272 was cited to teach a plurality of thermoelectric modules for producing electricity from the heat of a fuel cell. This rejection is respectfully traversed.

There is no dispute that Reiser discloses a plurality of adjacent fuel cells 22 and an internal duct 60 formed between the cells for circulating a cooling fluid. There is also no dispute that Reiser fails to teach the claimed plurality of thermoelectric modules in thermal contact with the cooling duct and the heat sources formed by the adjacent fuel cells.

Nor is there a dispute that JP ‘272 teaches thermoelectric modules that generate electricity from the high temperature *exhaust gas* of a fuel cell. For example, Fig. 16 of JP ‘272 discloses thermoelectric conversion elements provided between high temperature *exhaust gas* channels and cooling channels to generate electrical power.

Nonetheless, the teaching of JP ‘272 is to use thermoelectric elements to generate electricity as a result of the temperature difference between the *exhaust gas from a fuel cell* and a cooling fluid. It does **not** teach generating electricity using thermoelectric modules in contact with fuel cells and *an internal cooling duct formed between the cells*. Thus, the teaching that JP ‘272 would provide for one skilled in the art is to modify Reiser to generate electricity by flowing the *exhaust gas* from the fuel cells 22 past thermoelectric conversion elements in contact with a cold sink; **not** to connect such thermoelectric conversion elements to both the fuel cells of Reiser themselves and the cold sink 60 already present in between the adjacent fuel cells 22.

Nor can this difference be dismissed as the combination of familiar elements in the art since neither of the prior art references discloses the feature of thermoelectric modules contacting an internal cooling duct of the fuel cell stack as the cold sink. It is therefore respectfully submitted that the claims define over this prior art.

Dependent Claims 13 and 14 were respectively rejected as being obvious over Reiser in view of JP '272 and further in view of U.S. patent 6,096,964 or U.S. patent 3,470,033, which were cited to teach features of these dependent claims. However, since these additional references also do not teach plural fuel cells, wherein each of the thermoelectric modules is in contact with a respective one of the fuel cells and an internal duct comprising a cold sink, it is respectfully submitted that the claims define over any of the cited prior art.

Applicants therefore believe that the present application is in a condition for allowance and respectfully solicit an early notice of allowability.

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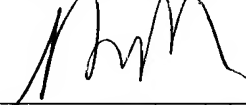
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